

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 1. (Currently amended) A method for manipulating a window within
2 a three-dimensional (3D) display model, comprising:
3 receiving an input from a 2D pointing device, wherein the input specifies a
4 2D offset within a 2D display, wherein the 2D display provides a view into the 3D
5 display model;
6 using the 2D offset to move a cursor to a position in the 2D display;
7 determining if the cursor overlaps a window within the 3D display model
8 by projecting a ray from a predefined viewpoint in the 3D display model through
9 the cursor, which is located in a rectangle representing the 2D display in the 3D
10 display model, toward one or more windows in the 3D display model and
11 determining if the ray intersects a window;
12 if the cursor overlaps a window,
13 determining a 2D position of the cursor with respect to a
14 2D coordinate system for the window, and
15 communicating the 2D position to an application associated
16 with the window to enable a user of the 2D pointing device to
17 interact with the application; and
18 displaying the window as a 3D object; wherein when the window is
19 rotated, a spine located on a side edge of the window becomes visible, wherein the
20 spine contains a title for the same window, and wherein the thickness of the spine
21 is significantly less than the dimension of the window.

1 2. (Cancelled)

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1 3. (Original) The method of claim 2, wherein determining the 2D
2 position of the cursor with respect to the 2D coordinate system of the window
3 involves:
4 determining a 3D position where the ray intersects the window within the
5 3D display model; and
6 transforming the 3D position in the 3D display model into a 2D position
7 with respect to the 2D coordinate system for the window based upon the size,
8 position and orientation of the window within the 3D display model.

1 4. (Original) The method of claim 3, wherein the size, position and
2 orientation of the window within the 3D display model are specified by a number
3 of attributes of the window, including:
4 a height;
5 a width;
6 an x-position;
7 a y-position;
8 a z- position;
9 a first rotation around a vertical axis of the window; and
10 a second rotation around a horizontal axis of the window.

1 5. (Original) The method of claim 1, further comprising:
2 receiving a second input from the 2D pointing device; and

3 in response to the second input, changing a viewing angle for the 3D
4 display model by rotating objects within the 3D display model around a
5 predefined viewpoint.

1 6. (Original) The method of claim 1, wherein if the cursor overlaps a
2 given window, the given window becomes a selected window and appears opaque
3 while other windows within the 3D display model appear translucent.

1 7. (Original) The method of claim 1, wherein if a command is
2 received to minimize a window, the window minimization operation is illustrated
3 as an animation that moves the window toward a minimized position near a
4 border of the 2D display while reducing the size of the window to its minimized
5 size.

1 8. (Original) The method of claim 1, wherein if a command is
2 received to close a window, the window closing operation is illustrated as an
3 animation that throws the window away by moving the window toward the
4 background of the 3D display model and causing the window to fade away.

1 9. (Original) The method of claim 1, wherein if a command is
2 received to rotate all windows in the 3D display model, the method further
3 comprises rotating all windows in the 3D display model, so that windows are
4 viewed from an oblique angle through the 2D display, whereby the contents of the
5 windows remain visible, while the windows occupy less space in the 2D display
6 and are less likely to overlap each other.

1 10. (Cancelled)

1 11. (Original) The method of claim 9, wherein when a user selects one
2 of the rotated windows, the method further comprises:
3 moving the selected window in front of the other windows;
4 unrotating the selected window so it faces the user; and
5 moving the other windows back to their original positions and
6 orientations.

1 12. (Original) The method of claim 1, wherein the 2D pointing device
2 can include:
3 a mouse;
4 a track ball;
5 a joystick; and
6 a glide point.

1 13. (Currently amended) A computer-readable storage medium storing
2 instructions that when executed by a computer cause the computer to perform a
3 method for manipulating a two-dimensional (2D) window within a three-
4 dimensional (3D) display model, the method comprising:
5 receiving an input from a 2D pointing device, wherein the input specifies a
6 2D offset within a 2D display, wherein the 2D display provides a view into the 3D
7 display model;
8 using the 2D offset to move a cursor to a position in the 2D display;
9 determining if the cursor overlaps a window within the 3D display model
10 by projecting a ray from a predefined viewpoint in the 3D display model through
11 the cursor, which is located in a rectangle representing the 2D display in the 3D
12 display model, toward one or more windows in the 3D display model and
13 determining if the ray intersects a window;
14 if the cursor overlaps a window,

15 determining a 2D position of the cursor with respect to a
16 2D coordinate system for the window, and
17 communicating the 2D position to an application associated
18 with the window to enable a user of the 2D pointing device to
19 interact with the application; and
20 displaying the window as a 3D object; wherein when the window is
21 rotated, a spine located on a side edge of the window becomes visible, wherein the
22 spine contains a title for the same window, and wherein the thickness of the spine
23 is significantly less than the dimension of the window.

1 14. (Cancelled)

1 15. (Original) The computer-readable storage medium of claim 14,
2 wherein determining the 2D position of the cursor with respect to the 2D
3 coordinate system of the window involves:
4 determining a 3D position where the ray intersects the window within the
5 3D display model; and
6 transforming the 3D position in the 3D display model into a 2D position
7 with respect to the 2D coordinate system for the window based upon the size,
8 position and orientation of the window within the 3D display model.

1 16. (Original) The computer-readable storage medium of claim 15,
2 wherein the size, position and orientation of the window within the 3D display
3 model are specified by a number of attributes of the window, including:
4 a height;
5 a width;
6 an x-position;
7 a y-position;

8 a z- position;
9 a first rotation around a vertical axis of the window; and
10 a second rotation around a horizontal axis of the window.

1 17. (Original) The computer-readable storage medium of claim 13,
2 wherein the method further comprises:
3 receiving a second input from the 2D pointing device; and
4 in response to the second input, changing a viewing angle for the 3D
5 display model by rotating objects within the 3D display model around a
6 predefined viewpoint.

1 18. (Original) The computer-readable storage medium of claim 13,
2 wherein if the cursor overlaps a given window, the given window becomes a
3 selected window and appears opaque while other windows within the 3D display
4 model appear translucent.

1 19. (Original) The computer-readable storage medium of claim 13,
2 wherein if a command is received to minimize a window, the window
3 minimization operation is illustrated as an animation that moves the window
4 toward a minimized position near a border of the 2D display while reducing the
5 size of the window to its minimized size.

1 20. (Original) The computer-readable storage medium of claim 13,
2 wherein if a command is received to close a window, the window closing
3 operation is illustrated as an animation that throws the window away by moving
4 the window toward the background of the 3D display model and causing the
5 window to fade away.

1 21. (Original) The computer-readable storage medium of claim 13,
2 wherein if a command is received to rotate all windows in the 3D display model,
3 the method further comprises rotating all windows in the 3D display model, so
4 that windows are viewed from an oblique angle, whereby the contents of the
5 windows remain visible, while the windows occupy less space in the 2D display
6 and are less likely to overlap each other.

1 22. (Cancelled)

1 23. (Original) The computer-readable storage medium of claim 21,
2 wherein when a user selects one of the rotated windows, the method further
3 comprises:
4 moving the selected window in front of the other windows;
5 unrotating the selected window so it faces the user; and
6 moving the other windows back to their original positions and
7 orientations.

1 24. (Original) The computer-readable storage medium of claim 13,
2 wherein the 2D pointing device can include:
3 a mouse;
4 a track ball;
5 a joystick; and
6 a glide point.

1 25. (Currently amended) An apparatus that manipulates a two-
2 dimensional (2D) window within a three-dimensional (3D) display model,
3 comprising:

4 an input mechanism configured to receive an input from a 2D pointing
5 device, wherein the input specifies a 2D offset within a 2D display, wherein the
6 2D display provides a view into the 3D display model;
7 a cursor mechanism configured to use the 2D offset to move a cursor to a
8 position in the 2D display;
9 a window manipulation mechanism configured to determine if the cursor
10 overlaps a window within the 3D display model by projecting a ray from a
11 predefined viewpoint in the 3D display model through the cursor, which is located
12 in a rectangle representing the 2D display in the 3D display model, toward one or
13 more windows in the 3D display model and determining if the ray intersects a
14 window;
15 wherein if the cursor overlaps a window, the window manipulation
16 mechanism is configured to,
17 determine a 2D position of the cursor with respect to a 2D
18 coordinate system for the window, and to
19 communicate the 2D position to an application associated
20 with the window to enable a user of the 2D pointing device to
21 interact with the application; and
22 a display mechanism configured to display the window as a 3D object;
23 wherein when the window is rotated, a spine located on a side edge of the window
24 becomes visible, wherein the spine contains a title for the same window, and
25 wherein the thickness of the spine is significantly less than the dimension of the
26 window.

1 26. (Cancelled)

1 27. (Original) The apparatus of claim 26, wherein while determining
2 the 2D position of the cursor with respect to the 2D coordinate system of the
3 window, the window manipulation mechanism is configured to:
4 determine a 3D position where the ray intersects the window within the 3D
5 display model; and to
6 transform the 3D position in the 3D display model into a 2D position with
7 respect to the 2D coordinate system for the window based upon the size, position
8 and orientation of the window within the 3D display model.

1 28. (Original) The apparatus of claim 27, wherein the size, position
2 and orientation of the window within the 3D display model are specified by a
3 number of attributes of the window, including:
4 a height;
5 a width;
6 an x-position;
7 a y-position;
8 a z- position;
9 a first rotation around a vertical axis of the window; and
10 a second rotation around a horizontal axis of the window.

1 29. (Original) The apparatus of claim 25, further comprising a viewing
2 angle changing mechanism configured to:
3 receive a second input from the 2D pointing device; and
4 in response to the second input, to change a viewing angle for the 3D
5 display model by rotating objects within the 3D display model around a
6 predefined viewpoint.

1 30. (Original) The apparatus of claim 25, wherein if the cursor
2 overlaps a given window, the window manipulation mechanism is configured to
3 make the given a selected window that appears opaque while other windows
4 within the 3D display model appear translucent.

1 31. (Original) The apparatus of claim 25, wherein if a command is
2 received to minimize a window, the window manipulation mechanism is
3 configured to illustrate the minimization operation as an animation that moves the
4 window toward a minimized position near a border of the 2D display while
5 reducing the size of the window to its minimized size.

1 32. (Original) The apparatus of claim 25, wherein if a command is
2 received to close a window, the window manipulation mechanism is configured to
3 illustrate the window closing operation as an animation that throws the window
4 away by moving the window toward the background of the 3D display model and
5 causing the window to fade away.

1 33. (Original) The apparatus of claim 25, wherein if a command is
2 received to rotate all windows in the 3D display model, the window manipulation
3 mechanism is configured to rotate all windows in the 3D display model, so that
4 windows are viewed from an oblique angle through the 2D display, whereby the
5 contents of the windows remain visible, while the windows occupy less space in
6 the 2D display and are less likely to overlap each other.

1 34. (Cancelled)

1 35. (Original) The apparatus of claim 33, wherein when a user selects
2 one of the rotated windows, the window manipulation mechanism is configured
3 to:

4 move the selected window in front of the other windows;
5 unrotate the selected window so it faces the user; and to
6 move the other windows back to their original positions and orientations.

1 36. (Original) The apparatus of claim 25, wherein the 2D pointing
2 device can include:

3 a mouse;
4 a track ball;
5 a joystick; and
6 a glide point.

1 37. (Currently amended) A means for manipulating a two-dimensional
2 (2D) window within a three-dimensional (3D) display model, comprising:

3 an input means for receiving an input from a 2D pointing device, wherein
4 the input specifies a 2D offset within a 2D display, wherein the 2D display
5 provides a view into the 3D display model;

6 a cursor means configured to use the 2D offset to move a cursor to a
7 position in the 2D display;

8 a window manipulation means configured to determine if the cursor
9 overlaps a window within the 3D display model by projecting a ray from a
10 predefined viewpoint in the 3D display model through the cursor, which is located
11 in a rectangle representing the 2D display in the 3D display model, toward one or
12 more windows in the 3D display model and determining if the ray intersects a
13 window;

14 wherein if the cursor overlaps a window, the window manipulation means
15 is configured to,
16 determine a 2D position of the cursor with respect to a 2D
17 coordinate system for the window, and to
18 communicate the 2D position to an application associated
19 with the window to enable a user of the 2D pointing device to
20 interact with the application; and
21 a display means for displaying the window as a 3D object; wherein when
22 the window is rotated, a spine located on a side edge of the window becomes
23 visible, wherein the spine contains a title for the same window, and wherein the
24 thickness of the spine is significantly less than the dimension of the window.